Amendments to the Claims

Kindly amend claims 1, 7, 8, 13, 15, 18, 21, 24, 31, 32, 33 and 34 as set forth below. Also as indicated below, please cancel claims 2, 5, 10, 14, 19 and 23 without prejudice. In compliance with the Revised Amendment Format published in the Official Gazette on February 25, 2003, a complete listing of claims is provided herein. The changes in the amended claims are shown by strikethrough (for deleted matter) and underlining (for added matter).

1.   (Currently amended) A method of accessing a file system, said method comprising the steps of:

creating an entry for a file with limited attributes and no data and for which there is provided an indication that said file is in an unrestored state; ~~and~~

accessing said file during file system restoration ; and

based on said indication determined from said accessing, permitting file system operations on said file, said operations being selected from the group consisting of (1) listing file names for any such file; and (2) removing any such file.

2.   (Canceled)

3.   (Original) The method of claim 1 further including the steps of restoring said file having an unrestored state indication and changing said indication to reflect its restored status.

4.   (Original) A method for restoring a file system comprising, during said restoration, the step of changing, for each file restored, a file status indicator from an unrestored indication, to a restored indication, following said file restoration.

5.   (Canceled)

6.   (Original) The method of claim 4 further including the step of temporarily suspending access, to a file for which said status indicator indicates that said file is in an unrestored state, until said file is restored.

7.   (Currently amended) A method of accessing a file system, said method comprising the steps of:

     creating an entry for a file with no attributes and no data and for which there is provided an indication that said file is in an unrestored state; ~~and~~

     accessing said file during file system restoration ; and

     based on said indication determined from said accessing, listing a file name for said file.

8.   (Currently amended) A method of accessing a file system, said method comprising the steps of:

     creating an entry for a file with no attributes and no data and for which there is provided an indication that said file is in an unrestored state; ~~and~~

     accessing said file during file system restoration ; and

     based on said indication determined from said accessing, removing a file name assigned to said file.

9.   (Original) A method of accessing a file system, said method comprising the step of:

     during restoration of said file system, upon access directed to a file in said system which possesses an indication of not yet being restored, restoring said file and changing said indication to reflect its restored status and accessing said file during the restoration of said file system.

10.   (Canceled)

11.   (Currently amended) A method of accessing a file system, said method comprising the step of during restoration of said file system containing entries for at least one file with limited attributes and no data, upon access directed to said at least one [[a]] file in

said system which possesses an indication of not yet being restored, removing said file from said file system and skipping restoration of said file.

12.   (Currently amended) A method of accessing a file system, said method comprising the step of during restoration of said file system containing entries for at least one file with limited attributes and no data, upon access directed to said at least one [[a]] file in said system which possesses an indication of not yet being restored, adjusting scheduled file system restoration priority so that said accessed file is restored earlier within said scheduled sequence.

13.   (Currently amended) A method for restoring a file system comprising the steps of:

creating an empty file system in which file system inodes are marked to indicate that neither file attributes nor file data are indicated as being restored;

initializing a namespace for the file system;

restoring a root directory for the file system; and

restoring at least one file in said file system and providing an indication that said file's attributes and data are restored; and

accessing said file during said file restoration.

14.   (Canceled)

15.   (Currently amended) The method of claim 13 14 further including the step of suspending access to said file in said file system until data in said file is restored.

16.   (Original) A method for restoring a file system comprising the steps of:

creating an empty file system in which file system inodes are marked to indicate that neither file attributes nor file data are indicated as being restored;

initializing a namespace for the file system;

restoring file system directory information for all of said file system;

restoring at least one file in said file system and providing an indication that said file's attributes and data are restored; and

accessing said file during said file restoration.

17. (Original) The method of claim 16 in which said restoring of said file system directory information is carried out recursively.

18. (Currently amended) A method for restoring a file system comprising the steps of:

creating an empty file system in which file system inodes are marked to indicate that neither file attributes nor file data are indicated as being restored; and

restoring said file system using a previously created table containing associated file names and inode numbers; and

processing in disjoint portions by different data processing nodes, whereby said restoration is carried out in parallel.

19. (Canceled)

20. (Original) The method of claim 18 further including the step of spawning at least one other process to carry out said file system restoring.

21. (Currently amended) A method for restoring a file system comprising the steps of:

creating an empty file system in which file system inodes are marked to indicate that neither file attributes nor file data are indicated as being restored; and

restoring at least one file in said file system in a fashion in which attributes for said file are restored but for which data for said file is not immediately restored at a later time.

22.   (Original) The method of claim 21 further including the step in which an application program accesses said file to ascertain said file's attributes but not the data content of said file.

23.   (Canceled)

24.   (Currently amended) A method for restoring a file system comprising the steps of:

creating an empty file system in which file system inodes are marked to indicate that neither file attributes nor file data are indicated as being restored; ~~and~~

accessing said file during file system restoration ; and

based on said indication determined from said accessing, restoring at least one file in said file system using a previously created table containing associated file names and inode numbers.

25.   (Original) The method of claim 24 in which file restoration is carried out for all of the files in said file system.

26.   (Original) The method of claim 24 in which file restoration is carried out for a plurality of files in said file system.

27.   (Original) The method of claim 25 in which said file restoration occurs in an order specified in said previously created table.

28.   (Original) The method of claim 27 in which said file restoration occurs from files stored in a given order on another medium and said restoration occurs in an order based on the order present on said other medium.

29.   (Original) The method of claim 28 in which said medium is tape.

30.   (Original) The method of claim 24 in which said table was generated in a previously carried out file system backup operation.

31.   (Currently amended) A computer program product, for file system restoration, stored on a machine readable medium having program means thereon for (1) creating an entry for a file with no attributes and no data and for which there is provided an indication that said file is in an unrestored state; (2) accessing said file during file system restoration ; and (3) (2) based on said indication determined from said accessing, permitting file system operations on said file, said operations being selected from the group consisting of (a) listing a file name for said file; and (b) removing of said file.

32.   (Currently amended) A computer program product, for file system restoration, stored on a machine readable medium having program means thereon for performing, during said restoration and upon access directed to a file in said system which possesses an indication of not yet being restored, the step of restoring said file and changing said indication to reflect its restored status changing, for each file restored, a file status indicator from an unrestored indication, to a restored indication, following said file restoration.

33.   (Currently amended) A data processing system comprising:

    a central processing unit;

    a random access memory for storing data and programs for execution by said central processing unit;

    a nonvolatile storage device;

    program means for file system restoration, said program means being stored on a machine readable said program means including means for (1) creating an entry for a file with no attributes and no data and for which there is provided an indication that said file is in an unrestored state; (2) for accessing said file during file system restoration; and (3) (2) for permitting, based on said indication determined from said accessing, file system operations on said file, said operations being selected from the group consisting of (a) listing a file name for said file; and (b) removal of said file.

34.   (Currently amended) A data processing system comprising:

a central processing unit;

a random access memory for storing data and programs for execution by said central processing unit;

a nonvolatile storage device;

program means for file system restoration, said program means being stored on a machine readable medium, for performing, during said restoration, and upon access directed to a file in said system which possesses an indication of not yet being restored, the step of changing, for each file restored, a file status indicator from an unrestored indication, to a restored indication, following said file restoration of said accessed file.